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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/747,976	12/27/2000	Takashi Kitae	56937-022	3643

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EXAMINER

PAREKH, NITIN

ART UNIT PAPER NUMBER

2811

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. **09/747,976**Applicant(s) **KITAE ET AL.**Examiner **Nitin Parekh**Art Unit **2811**

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6-9 and 18-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9,21 and 25 is/are rejected.
- 7) ☒ Claim(s) 1,3,6-8,18-20,22-24,26 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No: _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 1, 6 and 18 are objected to because of the following informalities:
 - A. Claim 1 recites the limitation "the particle diameter" in line 6. There is insufficient antecedent basis for this limitation in the claim.
 - B. Claim 6 recites the limitation "the particle diameter" in line 9. There is insufficient antecedent basis for this limitation in the claim.
 - C. Claim 18, line 3: Delete "provided".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Sako (US Pat. 6137183).

Regarding claim 9, Sako discloses an integrated circuit (IC) chip or a passive component (1 in Fig. 1; Col. 2-10) comprising:

- an electronic part/mounting element/IC chip (1 in Fig. 1)
- an external bump/electrode (2 in Fig. 1)
- a coating layer of a conductive paste/adhesive (see 3 in Fig. 1) containing a conductive filler (Col. 6, line 25- Col. 7, line 8) formed on entire surface of the an external bump/electrode
- the conductive filler comprising electrically conductive particles of a variety of metals such as nickel, gold, etc. (Col. 7, lines 1-8), and
- the external bump/electrode being electrically connected to respective bump/terminal or pattern (not numerically referenced in Fig. 1; Col. 5, line 23; Fig. 8) of a substrate/element (5 in Fig. 1) on which the IC chip/electronic part is mounted, the coating operative as a connecting element for connecting the external bump/electrode to respective bump/terminal

(Fig. 1; Col. 6, line 25- Col. 7, line 8; Col. 2-10).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sako (US Pat. 6137183) in view of Kodama et al. (US Pat. 5277723).

Regarding claims 21 and 25, Sako teaches substantially the entire claimed structure as applied to claim 9 above, except a surface roughness (Ra) of the external electrode being set in a range of 0.1-10.0 microns or 0.1-5.0 microns respectively.

Kodama et al. teach using electronic parts/passive components comprising an internal and external wiring/conductors on inside and side surfaces where the external surface has Ra value of about ranging from 0.3 microns to 2.0 microns (Fig. 7c, 5c, 3c, etc.; Col. 7, line 35- Col. 8, line 20; Col. 11, line 35- Col. 12, line 55; examples 14 and 15 in Col. 27 and 28). Kodama et al further teach achieving the optimum Ra value by controlling the parameters such as firing shrinkage ratio, temperature, pressure and pore size of a substrate material (Col. 11, line 50; Col. 8-12).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to arrive at a surface roughness (Ra) range of the external electrode surface being 0.1-10 microns or 0.1-5 microns as taught by Kodama et al. so that the adhesion and bonding strength of the external electrodes can be improved in Sako's electronic part mounting element.

Allowable Subject Matter

6. Claims 1, 6 and 18 and dependent claims 3, 7, 8, 19, 20, 22-24, 26 and 27 would be allowable if the base claims 1, 6 and 18 are rewritten to overcome the above objections.

Response to Arguments

7. Applicant's arguments with respect to claims 9, 21 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Parekh whose telephone number is 571-272-1663.

The examiner can normally be reached on 09:00AM-05:30PM.

Art Unit: 2811

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

NP

05-22-04



Nitin Parekh

PATENT EXAMINER

TECHNOLOGY CENTER 2800
